

We claim:

1. A method for inhalation of a dry powder drug comprising:  
5 providing a dry powder drug composition comprising particles comprising a lipid matrix and a particle size of 1-30 microns, mass median aerodynamic diameter of less than 5 microns, and bulk density of less than  $0.5 \text{ g/cm}^3$ ;

loading the composition into a passive dry powder inhaler; and  
10 inhaling the drug composition from the inhaler resulting in an emitted dose substantially independent of device resistance and lung deposition substantially independent of inhalation flow rate.

2. A method according to claim 1 wherein the emitted dose is at least

60%.

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sub  
at least 80%.

3. A method according to claim 2 comprising an emitted dose of at

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60%.

4. A method according to claim 1 comprising a  $\text{FPF}_{4+F}$  of at least

5. A method according to claim 1 wherein the lipid comprises a phospholipid selected from the group consisting of dipalmitoylphosphatidylcholine, disteoylphosphatidylcholine, diarachidoylphosphatidylcholine  
25 dibehenoylphosphatidylcholine, diphosphatidyl glycerol, short-chain phosphatidylcholines, long-chain saturated phosphatidylethanolamines, long-chain saturated phosphatidylserines, long-chain saturated phosphatidylglycerols, and long-chain saturated phosphatidylinositols.

30 6. A method according to claim 1 wherein the inhaler comprises a resistance of less than  $0.60 (\text{cmH}_2\text{O})^{1/2} / \text{L min}^{-1}$ .

7. A method according to claim 6 wherein the inhaler comprises a resistance within the range of  $0.01 - 0.30 \text{ (cmH}_2\text{O)}^{1/2} / \text{L min}^{-1}$

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~~A2~~ Sub  
about 90 L/min.

8. A method of claim 1 wherein the inhalation flow rate is less than about 90 L/min.

9. A method of claim 8 wherein the inhalation flow rate is within the range of about 10 – 60 L/min.

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10. A method of claim 9 wherein the inhalation flow rate is within the range of 12 – 45 L/min.

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~~A3~~ Sub  
25%.

11. A method of claim 1 wherein the lung deposition is greater than

✓

12. A method according to claim 1 wherein the lung deposition is greater than 30%.

✓

13. A method according to claim 1 wherein the lung deposition is greater than 50%.

✓

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~~A4~~ Sub

14. A method according to claim 1 wherein the drug is selected from the group consisting of budesonide, tobramycin sulfate, leuprolide acetate, Amphotericin B, and PTH.

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15. A method of claim 1 wherein the powder comprises hollow porous microparticles.

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16. A method for inhalation of a dry powder drug comprising: providing a dry powder drug composition comprising a hydrophobic active agent, said composition comprising particles comprising a lipid matrix and a

particle size of 1-30 microns, mass median aerodynamic diameter of less than 5 microns,  
and bulk density of less than 0.5 g/cm<sup>3</sup>;

loading the composition into a passive dry powder inhaler;

inhaling the drug composition from the inhaler in order to achieve a T<sub>max</sub>

5 within 15 minutes of the inhalation.

17. A method according to claim 16 wherein the active agent is  
amphotericin B.

10 18. A method according to claim 16 wherein the active agent is  
budesonide.

15 19. A method according to claim 18 wherein T<sub>max</sub> is achieved within  
10 minutes of the inhalation. ✓

20 20. A method according to claim 16 wherein the lipid comprises a  
phospholipid selected from the group consisting of dipalmitoylphosphatidylcholine,  
disteoylphosphatidylcholine, diarachidoylphosphatidylcholine  
dibehenoylphosphatidylcholine, diphosphatidyl glycerol, short-chain  
phosphatidylcholines, long-chain saturated phosphatidylethanolamines, long-chain  
saturated phosphatidylserines, long-chain saturated phosphatidylglycerols, and long-chain  
saturated phosphatidylinositols.

ack  
AS (